

Applicant: HEERENS
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REMARKS

In response to the Office Action mailed December 11, 2006 (hereinafter "Office Action"), claims 3, 4, 11 and 15-18 have been canceled without prejudice or disclaimer, and claims 1, 12, 19 and 20 have been amended without any intention of narrowing the scope of any of the claims. Claims 21-27 have been newly added, of which claim 26 is withdraw from prosecution. Claims 5, 7-10, 13-14 and 20 were previously withdrawn from examination due to a restriction requirement. Therefore, claims 1-2, 4, 6, 12 and 21-24 are pending. Support for the instant amendments and new claims are provided throughout the as-filed specification. Thus, no new matter has been added. In view of the foregoing amendments and following comments, allowance of all the claims pending in the application is respectfully requested.

INFORMATION DISCLOSURE STATEMENT

Applicant appreciates the consideration of most of the Information Disclosure Statements filed April 18, 2006 and July 14, 2006. The Examiner did not initial the non-patent document English Translation of Japanese Office Action issued in Japanese Patent Application No. 2003-321110 dated January 20, 2006 included on the April 18, 2006 PTO-1449 and the non-patent document English Translation of Japanese Office Action issued in Japanese Patent Application No. 2003-321110 mailed May 9, 2006 included on the July 14, 2006 PTO-1449 . Enclosed is a new PTO-1449 listing only those non-patent documents and stamped receipts for the Information Disclosure Statements filed April 18, 2006 and July 14, 2006 indicating receipt of those cited documents on those PTO-1449 forms. The Examiner is respectfully requested to initial, sign and date the enclosed PTO-1449 to indicate that those non-patent documents have been considered and return a copy with the next Office Action.

REJECTIONS UNDER 35 U.S.C. § 103

Claims 1, 2, 11 and 12 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,764,385 to Boumerzoug et al. ("Boumerzoug") in view of U.S. Patent No. 6,136,167 to Misiano et al. ("Misiano"). Applicant respectfully traverses this rejection for *at least* the reason that a *prima facie* case of obviousness has not been established.

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In particular, Applicant submits that, even assuming *arguendo* that Boumerzoug and Misiano are properly combinable (which Applicant does not concede), the cited portions of Boumerzoug and Misiano fail to disclose, teach or suggest a method of cleaning a surface of an object by removing contaminant particles from the surface of the object, the method comprising, *inter alia*, reducing a gas pressure in the chamber, wherein the gas pressure is reduced from a first pressure to a second pressure, wherein the second pressure is about 10^{-2} mbar, in less than 5 seconds, as recited in claim 1.

The Office Action acknowledges that Boumerzoug fails to “specifically teach that the pressure is reduced to 10^{-2} mbar in less than 5 seconds.” [Office Action, page 4, §8]. To remedy the admitted deficiencies of Boumerzoug, the Office Action combines the teachings of Misiano with Boumerzoug. Particularly, the Office Action states “Misiano teaches that after a preliminary cleaning of the substrate it is placed in the chamber, the chamber is sealed, and then vacuum is drawn by the pumping system and then the forechamber 1 can be filled with argon to a pressure for instance, 10^{-1} .” [Office Action, page 5].

Misiano teaches an apparatus for thin film deposition on fixed objects, wherein the apparatus includes both a forechamber 1 and a deposition chamber C that can be sealed over the material to be vapor deposited with annular seal T. *See*, Abstract and col. 3, lines 13-38 of Misiano. Both the forechamber 1 and deposition chamber C are coupled to vacuum pumping systems 24, 28, such that after a preliminary cleaning process the forechamber 1 is vacuum pumped and filled with argon gas to a pressure of 10^{-1} torr and the deposition chamber C is vacuum pumped and filled with argon gas to a pressure of 10^{-2} torr. *See*, col. 3, lines 19-24 and lines 29-33 and col. 4, lines 28-35 of Misiano.

However, the cited portions of Misiano clearly fail to disclose, teach or suggest reducing a gas pressure in the chamber from a first pressure to a second pressure, wherein the second pressure is about 10^{-2} mbar, in less than 5 seconds. The cited portions of Misiano simply have no disclosure about, for example, such timing. With respect to the argument that ‘less than 5 seconds’ could “[mean] that vacuum can be imposed from the very beginning”, Applicant submits that the claim clearly recites reducing from one pressure to another pressure and thus traverses that argument.

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Therefore, Applicant respectfully submits that the cited portions of Boumerzoug, Misiano, and any proper combination thereof fail to disclose, teach, or suggest each and every element recited by claim 1. Claim 11 has been cancelled and so its rejection is now moot. Claim 12 has been amended to depend from new claim 24 and so its patentability will be discussed below with respect to claim 24. Claim 2 depends from claim 1, and is, therefore, patentable for at least the same reasons provided above related to claim 1, and for the additional features recited therein. Thus, Applicant respectfully requests that the rejections of claims 1, 2, 11 and 12 under 35 U.S.C. §103(a) in view of Boumerzoug and Misiano should be withdrawn and the claims be allowed.

Claims 3, 4 and 6 stand rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Boumerzoug in view of Misiano and in further view of Japanese patent application publication no. JP 07-096259 to Omi *et al.* ("Omi"). [Office Action, pg. 5, ¶9]. Applicant traverses this rejection for *at least* the reason that a *prima facie* case of obviousness has not been established.

First, claims 3 and 4 have been canceled and so their rejection is now moot.

With regard to claim 6, as discussed above, the cited portions of Boumerzoug and Misiano fail to disclose, teach or suggest claim 1. Further, assuming *arguendo* that Omi is properly combinable with Boumerzoug and Misiano (which Applicant does not concede), the cited portions of Omi fail to overcome the deficiencies of Boumerzoug and Misiano. For example, the cited portions of Omi fail to provide any disclosure, teaching or suggestion regarding reducing a gas pressure in the chamber, wherein the gas pressure is reduced from a first pressure to a second pressure, wherein the second pressure is about 10^{-2} mbar, in less than 5 seconds as recited in claim 1.

Therefore, Applicant respectfully submits that the cited portions of Boumerzoug, Misiano, Omi, and any proper combination thereof fail to disclose, teach, or suggest each and every element recited by claim 1. Claim 6 depends from claim 1, and is, therefore, patentable for at least the same reasons provided above related to claim 1, and for the additional features recited therein. Thus, Applicant respectfully requests that the rejections of claims 3, 4 and 6

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under 35 U.S.C. §103(a) in view of Boumerzoug, Misiano, and Omi should be withdrawn and the claims be allowed.

NEW CLAIMS 21-27

New claims 21 and 22 depend from claim 1, and are, therefore, patentable for at least the same reasons provided above related to claim 1, and for the additional features recited therein

New claim 23 recites a method of cleaning a surface of an object by removing contaminant particles from the surface of the object comprising, *inter alia*, reducing a gas pressure in the chamber from a first pressure of about atmospheric to a second pressure of about 10^{-2} mbar in less than 5 seconds in the chamber; and increasing the gas pressure subsequent to decreasing the pressure in the chamber, wherein the gas pressure is increased to about the first pressure in less than 5 seconds. Further, new claim 27 recites a method of cleaning a surface of an object by removing contaminant particles from the surface of the object, the method comprising, *inter alia*, reducing a gas pressure in the chamber from a first pressure to a second pressure of about 10^{-2} mbar in less than 5 seconds and bombarding the surface of the object with inert particles.

As discussed above, the cited portions of Boumerzoug, Misiano, Omi, and any proper combination thereof fail to teach or suggest, for example, reducing a gas pressure in the chamber from a first pressure to a second pressure of about 10^{-2} mbar in less than 5 seconds. Therefore, Applicant submits that new claims 23 and 27 are patentable over the applied references. Further, new claims 24-26 depend from claim 23, and are, therefore, patentable for at least the same reasons provided above related to claim 23, and for the additional features recited therein.

CONCLUSION

Having addressed each of the foregoing rejections, it is respectfully submitted that a full and complete response has been made to the outstanding Office Action and, as such, the application is in condition for allowance. Notice to that effect is respectfully requested.

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If the Examiner believes, for any reason, that personal communication will expedite prosecution of this application, the Examiner is invited to telephone the undersigned at the number provided.

Date: February 9, 2007

Respectfully submitted,


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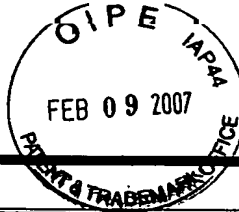
Appln. No: 10/658,800	Atty: John P. Darling/SIMMONSC
First Inventor: GERT-JAN HEERENS	Date: April 18, 2006
Title: METHOD OF CLEANING BY REMOVING PARTICLES FROM SURFACES, A CLEANING APPARATUS AND A LITHOGRAPHIC PROJECTION APPARTUS	Attorney Docket No: 081468-0305844

ENCLOSED:

- ☒ IDS Letter
- ☒ Japanese Office Action (English translation only)
- ☒ PTO-1449
- ☒ Cited Documents

CURRENT DUE DATE: April 20, 2006





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Appln. No: 10/658,800	Atty: John P. Darling/SIMMONSC
First Inventor: GERT-JAN HEERENS	Date: July 14, 2006
Title: METHOD OF CLEANING BY REMOVING PARTICLES FROM SURFACES, A CLEANING APPARATUS AND A LITHOGRAPHIC PROJECTION APPARATUS	Attorney Docket No: 081468-0305844

ENCLOSED:

- ☒ IDS Letter
- ☒ PTO-1449
- ☒ Cited Documents

CURRENT DUE DATE: July 14, 2006